

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the outstanding grounds of rejection is respectfully requested in light of the above amendments and the remarks that follow.

The Examiner has rejected claims 1-10 and 12-16 under 35 U.S.C. §112, first paragraph, as based on a non-enabling disclosure. Specifically, the Examiner contends that the omission of specific cooling rates in the claims renders the claimed subject matter non-enabling since those cooling rates are, in the Examiner's view, critical or essential to the process.

In response, applicants have amended independent claim 1 to incorporate the cooling rate limitations from originally filed dependent claims 3 and 5. At the same time, applicants have canceled claims 3, 5 and 8-16. With these changes, the Section 112, first paragraph rejection has been overcome with respect to remaining claims 1, 2, 4, 6 and 7.

The Examiner has also rejected claims 1-16 under 35 U.S.C. § 103 as unpatentable over the acknowledged prior art as disclosed in paragraphs 4-7 of the application as filed.

It is respectfully submitted that the disclosed "heat treatment A" described in paragraphs 4-7 of the application as filed, while containing certain elements of the claimed process neither discloses nor suggests the claimed invention as a whole. More specifically, the known heat treatment A neither contains nor suggests the specific cooling rates now incorporated into independent claim 1, the sole independent claim remaining in the application.

As the Examiner has also recognized, these limitations are significant to the invention and it is believed apparent from the specification that the cooling rates are not simply obvious matters of choice. In this regard, there is nothing in the acknowledged prior art that recognizes that a turbine rotor disk can be treated so as to have different properties at different locations as a result of the utilization of a certain defined sequence of heat treatment steps associated with individual cooling steps at specific cooling rates. The result is that the outer diameter and

surface of the turbine rotor disk will have good creep and crack growth resistance, while the interior and bore will have high strength at temperatures below 750°F (see paragraph 15 bridging pages 3 and 4 of the application as filed). A similar statement in the disclosure may be found in paragraph 18. The Examiner's attention is also directed to paragraphs 26 through 33 of the application, demonstrating the significance of the claim limitations.

In a telephone interview on May 9, 2006, the Examiner acknowledged that the amendments to the claims overcome the rejections under 35 U.S.C. § 112, but not the rejection under 35 U.S.C. § 103 as set forth on pages 3-5 of the Official Action. In this regard, the Examiner maintained the position in the paragraph bridging pages 4 and 5 of the application wherein it is stated that

“Regarding the cooling rates, it is the Examiner's position that the prior art cools by air cooling which is considered to encompass furnace cooling in air, removing the work piece from the treatment furnace and cooling the work piece in quiescent air, removing the work piece from the treatment furnace and cooling the work piece in an air blast stream, etc.

In view of this, applicants' claimed cooling rates are not considered to distinguish over the air cooling taught by the prior art.

The Examiner further asserted that the broad reference to air cooling in the prior heat treatment processes set forth on pages 1 and 2 of the application as filed encompass the specific cooling rates now incorporated into independent claim 1, thus, establishing prima facie obviousness of the claimed invention. Absent any evidence of unexpected results, the Examiner stands by the rejection.

It is, of course, well understood that the U.S. Patent and Trademark Office has the initial burden of producing a factual basis for a rejection under 35 U.S.C. § 103, i.e., establishing prima facie obviousness. This is a procedural mechanism to allocate in an orderly way the burdens of going forward and persuasion as between the Examiner and the applicants. If, however, the

examination does not produce a prima facie case of unpatentability, then without more, applicants are entitled to a grant of the patent. In re Oetiker, 977 F.2d 1433, 24 U.S.P.Q.2d, 1433 (Fed. Cir. 1992).

The prior art relied upon by the Examiner must provide the motivation to make the proposed modifications needed to arrive at the claimed invention. In re Lahu, 747 F.2d 703, 223 U.S.P.Q. 1257 (Fed. Cir. 1984).

In the case at hand, the art relied upon by the Examiner does not show cooling rate ranges that are either broader or narrower than the claimed cooling rates, and that might otherwise justify a holding of prima facie obviousness. Rather, the prior art relied upon by the Examiner discloses no range of cooling rates whatsoever, only the broad notion of "air cooling." To suggest, as the Examiner has done here, that the breadth of the term "air cool" necessarily encompasses (and therefore anticipates or renders obvious) all subsequent discoveries with respect to specific cooling rates in heat treatment processes is plainly without merit or justification in a determination of patentability.

As noted above, the prior art does not even recognize that a turbine rotor disk can be heat-treated so as to have different mechanical properties at different radial locations as a result of utilization of certain defined sequence of heat treatment steps and specific cooling rates. Thus, there would have been no motivation of any kind for one of ordinary skill in the art, at the time this application was filed, to modify the prior heat treatment steps as described on pages 1 and 2 of this application, so as to meet the specific cooling rate limitations of independent claim 1, absent use of applicants' own disclosure as a guide.

It is therefore applicants' position that the Examiner has not produced sufficient evidence to warrant a conclusion of prima facie obviousness. Absent establishment of prima facie

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obviousness, applicants are under no obligation to produce factual evidence of unexpected or surprising results.

It is respectfully submitted that the remaining claims disclose a process that is neither disclosed nor suggested in the prior art and therefore remaining claims 1, 2, 4, 6 and 7 are in condition for immediate allowance. In the event, however, any small matter remain outstanding, the Examiner is encouraged to telephone the undersigned so that the prosecution of this application can be expeditiously concluded.

Respectfully submitted,

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